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SUBJECT: BOTSWANA'S SCIENCE AND TECHNOLOGY AGENDA

¶1. Summary. The Government of Botswana (GOB) through the Ministry of Communications, Science and Technology (MCST), is determined to develop a credible national science and technology (S&T) capability that will yield globally competitive outputs. The most daunting challenge for Botswana is to utilize S&T towards achieving broad national socioeconomic outcomes of employment creation, poverty alleviation, economic diversification, combating diseases, and environmental sustainability of its natural resources for future generations. For this to happen, the development of a robust national system of innovation is required, as unprecedented landmarks in communications and information, and scientific and technological advances are becoming increasingly available. Major constraints to progress in technology and innovation development have been cited as inadequate human capital, infrastructure and targeted research funding. Post is strenuously pushing to increase S&T linkages between Botswana and the United States. End summary.

¶2. REHO recently paid a courtesy call on the Director, Research, Science and Technology, Dr Edson Selaolo (now Director of Botswana Technology Center (BOTEC)) to discuss possible S&T collaboration by the GOB and the Embassy. The Director informed REHO that, in recognizing the importance of Research, Science and Technology (RST), the GOB established the Ministry of Communication, Science and Technology (MCST) in 2002 with the responsibility to enhance the provision of RST, build an e-society through increased investment in information and communications technology (ICT), and ensure universal access to the media. The Department of RST was established within MCST in 2004 to coordinate and provide an enabling environment for research in S&T. The creation of the MCST also brought together a number of institutions from various existing ministries, with responsibilities for S&T research. These are: a) Botswana Technology Center (BOTEC); b) Rural Industries Promotions Company (RIPCO) and its subsidiary Rural Industries Innovation Center (RIIC); and c) the National Food Technology Research Center (NFTRC).

Science and Technology Policy

¶3. The S&T policy was approved by Botswana Parliament in 1998; it aims to achieve sustainable social and economic development through the coordinated and integrated application of S&T to raise the standards and quality of life of Batswana and to conserve the environment. Initial indications suggest that the problem of limited innovation in Botswana results from the lack of access to technology and finance, the absence of organizational capacity which could improve output in some areas, and limited human resources and weak scientific infrastructure. The constraints to S&T development that were identified by the 1998 S&T Policy of Botswana still remain unaddressed. These include fragmented research activities over several departments, low overall investment in research, a need for S&T coordination, rationalization and better priority setting, improved technology transfer systems, and inadequate S&T human resources.

Science and Technology Investment Plan

¶4. In Botswana, S&T funding has long been inadequate and without systematic coordination, resulting, in lack of significant impact on the economy. Globally, it has been observed that in countries with advanced economies, investment in S&T has direct link to economic development. The GOB has made a commitment in its National

Development Plan (NDP) 9 (i.e. for years 2004 to 2009) to increase investment in science and technology as a way of enhancing research and development capabilities in the country. The focus is on the creation of research and technology development funds, accelerated training of research scientists and engineers, technology forecasting, capacity building for existing RST organizations and publishing S&T research results that could have impact on the economy. Botswana's Vision 2016 also emphasizes the importance of expanding capacity in research and development to enable technology adaptation and transfer.

Training of Scientist and Technologists

¶5. Generally, government departments are characterized by lack of experienced research scientists, managers and strategists to perform their daily operations. The trend is now spreading to the lower technician cadres who were adequately provided for in the past. In the health sector, over 90 percent of the medical professionals and 60 percent of the medical supplies staff are foreigners. Conditions needing specialized health service are often referred to South Africa because of the lack of local expertise. Infrastructural network is another important development in S&T, and is gathering momentum in Botswana. The country has embarked on a strong policy of infrastructural development, encompassing the building of health, educational, transport, communications, administrative and community facilities. These advancements offer an opportunity for the development of a strong national system of innovation to support research, science and technology effort. Botswana has made major investments in education. The enrollment of Botswana citizens in national tertiary education institutions and international has increased from 9,345 in 1992 to an estimated 27,491 in 2002. Of this number, the GOB sponsored about 26,120 students. However, a lot of students (estimated at 8,570) were in training institutions outside the country according to a UNDP 2004 report. It is envisaged that a second university with a curriculum focusing on science and technology will be built during the NDP 9 as well as the construction of a Faculty of Medicine and Applied Health Sciences at the University of Botswana.

¶6. REHO also recently visited Professor Otlogetswe Totolo, the Dean of Science at the University of Botswana, who also reiterated the need for Botswana to find its niche in the global economy. He opined that Botswana must have the capacity and capability to recognize technological opportunities that emerge from the globally scientific and technological advances. Furthermore, the country is emerging as a respected world center in the control and treatment of HIV/AIDS, using the most up-to-date research techniques and technologies. Botswana also has the opportunity to be a center of excellence in research in a number of fields, including amongst other things, savannah ecosystems and solar energy, according to Totolo.

¶7. REHO also hosted January 2008, the Global Dialogue on Emerging Science and Technology (GDEST) team from Washington. The aim of the visit was to come and meet with institutions, scientists and practitioners to determine their use of geospatial information; identify key constraints to the use and exchange of this information; and determine opportunities for future collaboration in geospatial analysis, capacity building and data exchange. The visit was a success and proved a catalyst for a vibrant response from Botswana's S&T community to the call for participation in the Embassy Science fellow Program.

Final Comment

¶8. In order to ensure sustainable development, it is necessary that further measures to increase the use and value of resources are initiated, and that Botswana becomes highly competitive in specific strategic areas. This requires, among other things, investment in science and technology research and capacity building, as well as collaboration with national and international organizations to drive the S&T agenda across board nationwide. The Botswana National Research Science and Technology plan will be fundamental to driving S&T activities in Botswana. The increased investment that the GOB is determined to put in S&T will be essential in establishing a robust national system of innovation, as well as moving the country

competitively ahead in this important field.

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